



Case Study

Campo Alegre, Salta, Argentina

Aquestia designs pipeline safety system for dam discharge

Background

The Campo Alegre dam is located in the province of Salta, in northwestern Argentina, a subtropical region subject to intense alluvial rainfall. Water from the old Campo Alegre reservoir is used for agricultural irrigation and to supply the 500,000 inhabitants of the city of Salta. Water transportation is entirely gravitational, via an aqueduct from the dam to a new treatment plant, from where potable water is transported via a second aqueduct to the city of Salta and intermediate cities. When construction of the water treatment plant is completed, it will have a capacity of 4,000 m³/ hour.

Challenges An uneven playing field

There is a topographic differential of 46 m between the Campo Alegre dam and the treatment plant. A 800 mm GRP pipeline is installed on partially consolidated land, and must cross the alluvial La Caldera river. Summer rains in the area are torrential. The challenge was in creating a completely automated system that operates without electricity to detect any possible rupture of the pipeline and stop the flow, thereby avoiding the disastrous effects of an uncontrolled discharge of the dam.



Solution The right valve for the job

Aquestia Dorot, through its distributor for the Argentine drinking water market, Valvtronic, proposed an automatic Excessive Flow Shut-off valve to limit the damage that could occur in the event of a pipe rupture. The DOROT S300 model 30I-28-FE valve was installed at the discharge of the dam, where the 2,000 m pipeline that feeds the water treatment plant begins. The orifice plate size of the valve was designed to suit the maximum expected flow. To avoid the considerable increase in flow rate and drop in pressure through the orifice plate that a downstream pipe break would cause, the differential pilot of the valve detects the overspeed generated by high consumption, and commands the valve to close.



Technical spec

Valve: DOROT S300
Model: 30I-28-FE
Size: DN700 / 28 "
Control function: Excessive Flow Shut-off

